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10/073,061	02/12/2002	Kun-soo Kim	1293.1315	2397

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EXAMINER	
PSITOS, ARISTOTELIS M	
ART UNIT	**PAPER NUMBER**
2656	

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/073,061	KIM ET AL.	
	Examiner	Art Unit	
	Aristotelis M. Psitos	2656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-34,50-55 and 60-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-34,50-55 and 60-74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/12/05 has been entered.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The submitted copy of pending claims omits a copy of claim 5. A corrected copy of all pending claims is respectfully required in any subsequent communications.

In the following analysis, the examiner groups/identifies the following claims together by concept/limitation.

Group:

a) Claims 1, 68,72 are drawn to an optical servo system wherein te is predicated upon the type of recording medium,

b) claims 2, 7,8 and 70-73: further identifying the type of medium as rom and writable,

c) claim 5: further identifying the signal processor,

d) claims 4,6, controller ability,

e) claims 9-13: further identifying the photodetectors,

f) claims 14-21: identifying an i/v conversion ability,

g) claims 22-28: identifying first and second order diffracted light,

h) claims 29-34: phase difference between certain sub-light beams,

k) claims 50-55: identifying an optical path changing ability,

l) claims 65-67: identifying a first and second light source.

Claim Objections

Applicant is advised that should claims 1, 2 and 67 be found allowable, claims 72,73 and 74 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

With respect to the use of the " / " in all instance in the claims, the examiner has interpreted such as meaning --- alternatively ----, i.e., --- or ---. If this is an incorrect interpretation, appropriate clarification is respectfully required.

Claim Rejections - 35 USC § 112

1. Claims 1,2,4-33,50-55,60-74 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) With respect to the independent claims, the following problem(s)/conflict now exist:

As recited in claim 1, lines 7-10 focusing upon the light detection device and function thereof, it is noted that as recited " --- at least one of a push-pull method and an improved push-pull method ---", conflicts with lines 21 – 22 which recites the first detection portion and function thereof because it refers ONLY to the improved push-pull method. None of the remaining limitations (of the independent claim) re-introduce/recite function(s) predicated upon the push-pull method.

Hence the examiner cannot readily ascertain the proper interpretation of the claim.

b) In the ultimate paragraph the wherein clause positively recites a switch and function thereof. However, the examiner concludes that this function does not follow from the elements positively recited, i.e., a critical element/function is not found (positively recited) in order to yield the desired result for the respective selective outputting between the detection signals.

The remaining independent claims have been amended accordingly and fall for the same reason.

c) With respect to dependent claims 4,11,18,24,31,52 and 7,19,25,32 and 53, because claim 3 HAS BEEN CANCELED, and these claim either directly or indirectly depend therefrom. Therefore, they fail to define/particularly point out and distinctly claim the invention.

The remaining dependent claims fall from the independent claims and fail to clarify the above noted problem as stated in subparagraphs a) and b) in this section.

As far as the claims positive limitations and as interpreted below, the following art rejections are made.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2,4-13,22-27,29-34,50-55, and 65-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-149564 further considered with JP 07-320287. The examiner refers to the MAT (machine assisted translation) of these documents (supplied either previously or herewith) as noted in the analysis below.

Claim 1	JP 10-149564 (MAT)
An optical recording/reproducing apparatus, see title/abstract comprising:	
an optical pickup including	see discussion wrt
an optical splitting device	figures 1-3
which splits light emitted from a first light source	light source and splitting
into a source main light beam and at least four	is performed/discussed
sub-light beams which are symmetrical with	main bean as well as the
respect to the main light beam, and	four secondary spots

irradiates the split source main and sub-light beams on a recording medium, and

a light detection device, which receives a reflected main light beam and reflected sub-light beams reflected by the recording medium, and outputs detection signals corresponding to the received reflected main and sub-light beams, so as to detect tracking error signals in a three-beam method and at least one of a push-pull method and an improved push-pull method; and

photodetector 213 see MAT starting at paragraph 3

see secondary JP reference

a signal processor, which receives the detection signals output by the light detection device and detects a first tracking error signal in the three-beam method and a second tracking error signal in the one of the push-pull method and the improved push-pull method,

processor of combined references

wherein the sub-light beams which are symmetrical with respect to the main light beam comprise first two sub-light beams and second two sub-light beams, the first two sub-light beams

see figures 2 & 3

being closer to the main light beam
than the second two sub-light beams,

wherein the signal processor comprises:

a first detection portion, which detects
the tracking error signal in the improved
push-null method from second detection signals
of the second two sub-light-beams and main
detection signals of the main light beam; and

combined teaching
of the JP documents

a second detection portion, which detects the
tracking error signal in the three-beam method
from first detection signals of the first two sub-light beams, and

follows

wherein the light detection device includes a switch
selectively outputting the first and
second detection signals to the first and
second detecting portions, respectively.

see secondary JP
reference.

In the above analysis, the base JP system 10-149564 discusses the prior at 3 beam tracking error systems, the problems arising therefrom in higher density discs, and the solution by arranging for auxiliary beams – see the discussion with respect to figures 1-3 in the MAT (machine assisted translation).

There is no clear depiction of selectively switching between the 3 Beam tracking method and at least one of PP of IMPROVED PP.

JP 07-320287 discusses both a 3 beam and an additional DPP system so as to generate TE signals from TES and TEP – see abstract as well as the entire MAT (machine assisted translation).

Furthermore, as noted in the discussion of figure 1 and the switch element 36, a selective outputting of the appropriately detected signals is enabled.

It would have been obvious to modify the base system of JP 10-140564 with the additional teaching from the JP 07-320287 system so as to permit both a 3 beam and an improved pp tracking error capability to be selectively engaged and hence meeting the claimed limitations. Motivation is as discussed by the overall environment of both documents, i.e., difference in pit depths/increased density disc formats.

Method claim 68 is met when the above systems operate. Apparatus claim 72 is a duplicate of claim 1 and falls as being met – see above analysis of claim 1.

With respect to claim 2, see paragraphs 11-13 of JP 07-320287 which teach/disclose such.

With respect to claims 4, 6 and 7 and 8 see paragraphs 13-16, as well as the discussion of the operation of element 37 in figure 1, wherein this element is so interpreted.

With respect to claim 5, see the discussion of figure 1, discussion thereof between the two different tracking capabilities.

With respect to claims 9-13 – the photodetectors are depicted in figure 1 of JP 07-320287.

With respect to claims 22-34, the examiner interprets the diffraction capability of the secondary reference as meeting this limitation.

With respect to claims 50-55 and 65-67, see the discussion of figure 6 starting in paragraph 77 in the MAT of the primary reference 10-149564 which discloses such an additional ability.

3. Claims 1-2, 5, 14-21, 29-34, 66-74 are rejected under 35 U.S.C. 102 (e) as being anticipated by Ijima et al or alternatively under 103 (a) as being obvious further considered with JP 07-320287.

The following analysis is made with respect to independent claim:

Claim 1	Ijima et al
An optical recording/reproducing apparatus comprising:	title/abstract of Ijima et al

an optical pickup including	see figure 1 element 1
an optical splitting device which splits light emitted from a first light source into a	see col. 2, lines 21-39
source main light beam and	main beam
at least four source sub-light beams which are symmetrical with respect to the main light beam,	first –fourth preceding and succeeding beams, see discussion starting at col. 8, line 1
and irradiates the split source main and source sub-light beams on a recording medium, and	function follows
a light detection device which receives a reflected main light beam and the reflected sub-light beams reflected by the recording medium, and outputs detection signals corresponding to the received reflected main and sub-light beams, so as to detect tracking error signals in a three-beam method and one of a push-pull method and an improved push-pull method; and	detecting elements see discussion of fig. 4 see te operation of the combined teachings
a signal processor, which receives the	see discussion of fig. 14

detection signals output by the light detection device and detects the tracking error signals in the three-beam method and the one of the push-pull method and the improved push-pull method,

wherein the sub-light beams which are symmetrical with respect to the main light beam comprise first two sub-light beams and second two sub-light beams, the first two sub-light beams being closer to the main light beam than the second two sub-light beams,

such symmetry exists

wherein the signal processor comprises:

a first detection portion, which detects the tracking error signal in the improved push-null method from second detection signals of the second two sub-light-beams and main detection signals of the main light beam; and

SSD & DPP discussed, see disclosure with respect to figure 7.

a second detection portion, which detects the tracking error signal in the three-beam method from first detection signals of the first two sub-light beams, and

follows

wherein the light detection device includes a switch selectively outputting the first and second detection signals to the first and second detecting portions, respectively.

element 302 in figure 1 or alternatively, the 2nd ref.

As analyzed above: Under 102 considerations;

Ijima et al discloses an optical system wherein various types of te servo systems/abilities are appropriately engaged so as to detect such a condition predicated upon medium type.

Applicants' attention is drawn to figures 1, 3,8 and 14 and the associated disclosure.

Wherein:

a) Ijima et al provides for a plurality of light sources, see col 9, lines 36 plus with respect to claims in the above identified group k; col 23 lines 32 plus with respect to claims in the above identified group e. Furthermore, applications attention is drawn to the discussion with respect to figure 1 starting at col. 6 line 60 to col. 8 line 61 wherein the reference discusses a three beam te ability, a differential push pull te ability and a differential phase detection te ability. Figure 14 depicts in table format the ability of various te abilities predicated upon medium type.

As amended, as noted in the above analysis, the emitted beam is now split into a main beam and at least 4 sub beams. Ijima et al does discussion the dividing of the emitting beam, to permit DPP mode of operation, as well as the 3-beam (main and two sunbeams).

The above noted passages are considered sufficient to depict the additional claimed elements.

With respect to the switching ability, under 102 considerations, the examiner interprets the discussion of element 302 as meeting such.

With respect to claims 14-21 the i/v conversion is discussed in the primary reference with respect to element 10 in figure 7, i.e., the i/v conversion capability.

With respect to claims 29-34, such phase difference is considered inherent in the diffraction grating of the primary reference.

Alternatively, if applicants can convince the examiner, no such switch exists, then under 103 considerations, the examiner relies upon the secondary JP document – see the discussion with respect to figure 1 and the switch element depicted therein as teaching such.

It would have been obvious to modify the base system of Ijima et al with the above additional switching/switch capability as further taught by the JP 07-320287 system, motivation is as overall discussed, switching between various tracking modes of operation.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

4. Claims 6-8, 9-13 and 22-27, 50-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims as stated in paragraph 3 above, and further in view of Shindo.

With respect to claim 6-8 as noted above the operational switching is further taught by the secondary JP reference, if not inherently present in the primary reference. Such switching in accordance with the type of disc detected is part of the above discussion with respect to switching the modes of operations and hence obvious over the above references.

The sub-photodetector arrangement of claims 9-12, and 13, as well as claims 22-27 are also depicted in Shindo et al for appropriate detection of the second order diffracted light beam.

With respect to claims 14 and 15, these claims are part of group f and are present as discussed above.

Although the examiner considers these claims as being present in the references as relied upon in paragraph 3 above, the further depiction/teaching from Shindo elaborates upon such.

It would have been obvious to modify the base references as relied upon above in paragraph 3 with the additional teaching from Shindo, motivation is to properly detected the reflected beams.

With respect to claims 50-55, Shindo also teaches an alternative optical arrangement with respect to the two light beam sources having an appropriate beam path changing element as depicted by figures 32,33 and 38.

It would have been obvious to modify the base system as relied upon above in paragraph 3, with this further teaching. Motivation is to provide for alternative beam sources so as to provide a variation/equivalent of the beam sources. No patentable distinction is seen to occur from selection such an equivalent alternative.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

5. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 60 above, and further in view of Nakai.

With respect to the limitations of claim 28 although there is no specific mentioning of the diffraction efficiency in the above noted references, the ability in providing appropriate efficiencies for diffraction elements is well known as taught by the Nakai reference – see the discussion with respect to the diffraction efficiency table in figure 2 vs. various wavelengths.

It would have been obvious to modify the base system as stated above in paragraph 8 with the additional ability of Nakai and provide the appropriate diffraction efficiency as required. The diffraction ration is an optimization of system parameters and obvious to those of ordinary skill in the art – see ***In re Peterson, 65 USPQ 1379.***

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

6. Claims 60-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims as stated in paragraph 3 above, and further in view of Izumi et al.

The claims introduce an alternative capability starting with claim 60. The examiner interprets such as being present/taught by Izumi et al – the astigmatic focusing capability.

Furthermore, Izumi et al also teach/disclose the plural light sources, the use of the k factor – see discussion starting at col. 16 line 1 and the discussion with respect to the switching capability 78/79.

It would have been obvious to modify the base system and modify such by including appropriate astigmatic focusing capability, motivation is to provide for a properly focused light beam upon the record medium.

Use of gain values (k) is well known in this environment as also found in Izumi et al for proper signal processing.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In the above rejections, the examiner has presented 3 secondary references for teaching the ability of splitting the emitting beam into a plurality of sub beams. It is noted that

a) Ogata et al (720) –see the discussion with respect to col 8 lines 47-63 which also teaches the ability of switching between a 3 beam and a DPP tracking mode for different formatted discs.

b) Ueyama et al – also teaching various plural beams and tracking control capabilities in this environment.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M. Psitos whose telephone number is (571) 272-7594. The examiner can normally be reached on M-Thursday 8 - 3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aristotelis M Psitos
Primary Examiner
Art Unit 2656

AMP